

1. An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

- 5 (a) the nucleotide sequence as set forth in either SEQ ID NO: 1 or  
SEQ ID NO: 4;
- (b) the nucleotide sequence of the DNA insert in ATCC Deposit Nos.  
PTA-1753 and PTA-1755;
- (c) a nucleotide sequence encoding the polypeptide as set forth in  
10 either SEQ ID NO: 2 or SEQ ID NO: 5;
- (d) a nucleotide sequence which hybridizes under moderately or  
highly stringent conditions to the complement of any of (a) - (c); and
- (e) a nucleotide sequence complementary to any of (a) - (c).
- 15 2. An isolated nucleic acid molecule comprising a nucleotide  
sequence selected from the group consisting of:
- (a) a nucleotide sequence encoding a polypeptide which is at least  
about 70 percent identical to the polypeptide as set forth in either SEQ ID NO: 2  
or SEQ ID NO: 5, wherein the encoded polypeptide has an activity of the  
20 polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;
- (b) a nucleotide sequence encoding an allelic variant or splice variant  
of the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4,  
the nucleotide sequence of the DNA insert in ATCC Deposit Nos. PTA-1753 and  
PTA-1755, or (a);
- 25 (c) a region of the nucleotide sequence of either SEQ ID NO: 1 or  
SEQ ID NO: 4, the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755,  
(a), or (b) encoding a polypeptide fragment of at least about 25 amino acid  
residues, wherein the polypeptide fragment has an activity of the encoded  
polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, or is antigenic;

(e) a nucleotide sequence which hybridizes under moderately or highly stringent conditions to the complement of any of (a) - (d); and

(f) a nucleotide sequence complementary to any of (a) - (d).

10 (a) a nucleotide sequence encoding a polypeptide as set forth in either  
SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid  
substitution, wherein the encoded polypeptide has an activity of the polypeptide  
set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(b) a nucleotide sequence encoding a polypeptide as set forth in either  
15 SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion, wherein  
the encoded polypeptide has an activity of the polypeptide set forth in either SEQ  
ID NO: 2 or SEQ ID NO: 5;

(c) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(d) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 which has a C- and/or N- terminal truncation, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(e) a nucleotide sequence encoding a polypeptide as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation, wherein the encoded polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

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12. A process for determining whether a compound inhibits Secs-1 polypeptide activity or Secs-1 polypeptide production comprising exposing a cell according to any of Claims 5, 6, or 7 to the compound and measuring Secs-1 polypeptide activity or Secs-1 polypeptide production in said cell.

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13. An isolated polypeptide comprising the amino acid sequence selected from the group consisting of:

(a) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and

(b) the amino acid sequence encoded by the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755.

14. An isolated polypeptide comprising the amino acid sequence selected from the group consisting of:

(a) the amino acid sequence as set forth in either SEQ ID NO: 3 or SEQ ID NO: 6, optionally further comprising an amino-terminal methionine;

(b) an amino acid sequence for an ortholog of either SEQ ID NO: 2 or SEQ ID NO: 5;

(c) an amino acid sequence which is at least about 70 percent identical to the amino acid sequence of either SEQ ID NO: 2 or SEQ ID NO: 5, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(d) a fragment of the amino acid sequence set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 comprising at least about 25 amino acid residues, wherein the fragment has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, or is antigenic; and

(e) an amino acid sequence for an allelic variant or splice variant of the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5, the amino acid sequence encoded by the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755, or any of (a) - (c).

15. An isolated polypeptide comprising the amino acid sequence selected from the group consisting of:

(a) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid substitution, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(b) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(c) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5;

(d) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 which has a C- and/or N- terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5; and

(e) the amino acid sequence as set forth in either SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

16. An isolated polypeptide encoded by the nucleic acid molecule of any of Claims 1, 2, or 3, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5.

17. The isolated polypeptide according to Claim 14, wherein the percent identity is determined using a computer program selected from the group consisting of GAP, BLASTP, FASTA, BLASTA, BLASTX, BestFit, and the Smith-Waterman algorithm.

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27. The selective binding agent of Claim 18 that is an antiidiotypic antibody or fragment thereof.

28. The selective binding agent of Claim 18 that is a variable region fragment.

29. The variable region fragment of Claim 28 that is a Fab or a Fab' fragment.

30. A selective binding agent or fragment thereof comprising at least one complementarity determining region with specificity for a polypeptide having the amino acid sequence of either SEQ ID NO: 2 or SEQ ID NO: 5.

32. The selective binding agent of Claim 18 that antagonizes Secs-1  
15 polypeptide biological activity.

34. A selective binding agent produced by immunizing an animal with a polypeptide comprising an amino acid sequence of either SEQ ID NO: 2 or SEQ ID NO: 5.

36. A method of detecting or quantitating the amount of Secs-1 polypeptide using the anti-Secs-1 antibody or fragment of Claim 18.

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45. A viral vector comprising a nucleic acid molecule of any of Claims 1, 2, or 3.



46. A fusion polypeptide comprising the polypeptide of any of Claims 13, 14, or 15 fused to a heterologous amino acid sequence.

47. The fusion polypeptide of Claim 46, wherein the heterologous amino acid sequence is an IgG constant domain or fragment thereof.

48. A method for treating, preventing, or ameliorating a medical condition comprising administering to a patient the polypeptide of any of Claims 13, 14, or 15, or the polypeptide encoded by the nucleic acid of any of Claims 1, 2, or 3.

49. The method of Claim 48 wherein the medial condition being treated, prevented, or ameliorated is a hematopoietic disorder, osteoporosis, osteopetrosis, osteogenesis imperfecta, Paget's disease, periodontal disease, hypercalcemia, acute glomerulonephritis, chronic glomerulonephritis, cancer, diabetes, obesity, or cachexia.

50. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or amount of expression of the polypeptide of any of Claims 13, 14, or 15, or the polypeptide encoded by the nucleic acid molecule of any of Claims 1, 2, or 3 in a sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

51. A device, comprising:

(a) a membrane suitable for implantation; and

(b) cells encapsulated within said membrane, wherein said cells secrete a protein of any of Claims 13, 14, or 15; and

52. A method of identifying a compound which binds to a Secs-1 polypeptide comprising:

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54. A method of modulating levels of a polypeptide in an animal  
15 comprising administering to the animal the nucleic acid molecule of any of  
Claims 1, 2, or 3.

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